REMARKS

Claims 1-18 were pending in the present application. By virtue of this response, claim 2 has been amended. Support for amendment to claim 2 is found in the specification, *inter alia*, on page 6, lines 19-21. Accordingly, claims 1-18 are currently under consideration. No new matter has been added.

With respect to all claim amendments and cancellations, Applicants have not dedicated or abandoned any unclaimed subject matter and moreover have not acquiesced to any rejections and/or objections made by the Patent Office. Applicants reserve the right to pursue prosecution of any presently excluded claim embodiments in future continuation and/or divisional application.

Rejections under 35 U.S.C. §112, second paragraph.

Claims 2 and 5 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner states that claim 2 is vague and indefinite in the recitation of "corresponds to" and it is unclear how a first antibody which "corresponds to" a second antibody differs from said second antibody.

Without acquiescence to the rejection and in the interest of expediting prosecution, claim 2 is amended to recite that "[t]he monoclonal antibody of claim 1 that competitively inhibits specific binding of the antibody produced by the hybridoma deposited under ATCC Accession No. HB-12588 to the antigen." Applicants respectfully note that claim 2 as amended is definite. Withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. §112, first paragraph.

Claims 1-18 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. The Examiner states that Applicants' referral to the deposit the hybridoma secreting the SM5-1 antibody on page 4, lines 10-11 of the specification is an

insufficient assurance that all required deposits have been made and all the conditions of 37 CFR 1.801-1.809 have been met.

Applicants respectfully note that a declaration by Jing Ma was submitted in the parent application (Ser. No. 09/451,353) in response to the enablement rejection, and the declaration was accepted by the Examiner in the parent application. A copy of the declaration is attached with this response for the Examiner's convenience. The declaration of Jing Ma avers that the hybridoma that secretes the SM5-1 antibody was deposited with the America Type Culture Collection with an ATCC accession No. HB-12588, an International Depository Authority under the provisions of the Budapest Treaty. Applicants respectfully submit that the declaration, along with the amendment of the specification on page 4, are sufficient to overcome the rejection of claims 1-18 under 35 U.S.C. §112, first paragraph. Applicants respectfully request that the rejection be withdrawn.

Rejections under 35 U.S.C. §102

Claims 1-9, 11, 12 and 18 are rejected under 35 U.S.C. §102(a), as allegedly being anticipated by the abstract of Chen et al (Journal of Molecular Medicine, may 1998, Vol. 76., page B11). The Examiner states that the specification provides that the SM5-1 antibody was deposited under the Accession number HB-12588 (page 4, lines 10-11). The Examiner further states that Chen et al. disclose that the SM5-1 antibody was made by immunizing mice with the non-metastatic SMMUneg cell line, treating mice with cyclophosphamide and subsequently immunizing the mice with a metastatic SMMUpos cell line, and thus Chen et al. teach how to make the hybridoma that secretes the SM5-1 antibody. The Examiner further states that the abstract of Chen et al. discloses that the SM5-1 antibody binds to human fibronectin at the 3' end of the protein encoded by the polynucleotide at position 4500-7660. The Examiner states that the abstract of Chen et al. discloses a method for detecting the presence of melanoma in a human host comprising contacting a tissue sample with the SM5-1 monoclonal antibody and detecting the formation of immune complexes as indicative of melanoma.

Applicants respectfully traverse this rejection.

Applicants respectfully note that, as demonstrated in the declaration of Dr. Guo pursuant to 37 C.F.R. §1.132 submitted with this response, the antigen that is specifically bound by the antibody SM5-1 produced by the hybridoma deposited under ATCC Accession No. HB-12588 is not a fibronectin as described by the abstract of Chen et al. As stated by Dr. Guo in the declaration, the experiment presented by the abstract of Chen et al. in which Dr. Guo is also an author was not repeatable with respect to specific binding of SM5-1 antibody to the fibronectin. The experiments presented in the declaration demonstrate that the antigen that antibody SM5-1 specifically binds to has a molecular weight of 180 kDa and 230 kDa, which are different from the molecular weight of 200 kDa shown in the abstract of Chen et al. The experiments shown in the declaration of Dr. Guo also demonstrate that fibronectin does not compete with binding of antibody SM5-1 to its antigen, and an anti-fibronectin antibody does not bind to the antigen that antibody SM5-1 specifically binds. Thus, Chen et al. do not teach or suggest the antigen of SM5-1 antibody.

Applicants also note that the abstract by Chen et al. is not enabling for a monoclonal antibody which specifically binds to an antigen that antibody SM5-1 specifically binds. Applicants respectfully note that immunizing with the same cells and same procedures, one skilled in the art could generate a variety of antibodies against a variety of antigens of the cells. Without antibody SM5-1, one skilled in the art would not be able to identify which antibody generated binds to the same antigen as SM5-1 or which antibody generated has the same amino acid sequence as antibody SM5-1. Antibody SM5-1 was deposited with ATCC under an agreement that the deposit would not be available to the public until the present patent application is granted. Since antibody SM5-1 was not available at the time when the abstract of Chen et al. was published, the abstract of Chen et al. cited by the Examiner is not enabling for the antibodies in claims 1-6, for the antigen in claim 7, and for the methods in claims 8, 9, 11, 12, and 18 which require the use of the antibodies. Thus, claims 1-9, 11, 12, and 18 are not anticipated by the abstract of Chen et al. Applicants respectfully request the rejection be withdrawn.

Claims 1-6, 8-13 and 18 are rejected under 35 U.S.C. §102(a), as allegedly being anticipated by the abstract of Trefzer et al (Journal of Dermatological Science, March 1998, Vol. 16. suppl. 1, page S110, reference 57 of the IDS submitted October 4, 2002). The Examiner states that the abstract of Trefzer et al. discloses a method for detecting the presence of melanoma in a human host comprising contacting a tissue sample with the SM5-1 monoclonal antibody and detecting the formation of immune complexes as indicative of melanoma. The Examiner further states that the abstract discloses that the SM5-1 detected melanoma in paraffin-embedded melanozytic tissues by means of the APAAP-technique for staining the tissues, thus fulfilling the specific embodiment of claim 9, drawn to a detectable label, claim 10, drawn to a paraffin-embedded tissue and claim 13, drawn to an enzyme as a detectable label.

Applicants respectfully traverse this rejection.

Applicants respectfully note that the abstract by Trefzer et al. is not enabling for antibody SM5-1, thus not enabling for methods of detecting the presence of melanoma in a human host using antibody SM5-1. As discussed above, even if a reference teaches the procedures used to generate a specific antibody against a cell line, one skilled in the art cannot generate the specific antibody (i.e., having the same amino acid sequence) without having this specific antibody for comparison and without knowing the antigen. As discussed above, the hybridoma that produces antibody SM5-1 is not available to the public until the present patent application is issued. Accordingly, the abstract by Trefzer et al. is not enabling for the methods of detecting the presence of melanoma in a human host using antibody SM5-1.

Applicants respectfully note that the Examiner has rejected claims 1-18 in this Office Action as allegedly failing to comply with the enablement requirement for the reason that Applicants' referral to the deposit in the specification is insufficient assurance that all required deposits have been made and all the conditions of 37 CFR 1.801 -1.809 have been met. Accordingly, the Examiner has considered the present claims not enabling without the availability of the deposit.

In view of the above, Applicants respectfully submit that claims 1-6, 8-13, and 18 are not anticipated by the abstract by Trefzer et al. Applicants respectfully request the rejection withdrawn.

Claim 7 is rejected under 35 U.S.C. §102(b), as allegedly being anticipated by Wilson et al (Biochem Biophys Research Commun, 1981, Vol. 101, pp. 1047-1051) as evidenced by the abstract of Chen et al (Journal of Molecular Medicine, May 1998, Vol. 76, page B11). The Examiner states that the abstract of Chen et al. discloses that the SM5-1 reacted with 18 different non-melanoma cell lines grown in culture in contrast to the 22 other non-melanoma tumor types which were all negative when stained with SM5-1 and the abstract concludes that the lack of selectivity with regard non-melanoma cultured tumor cells was a result of lack of post-translational processing of the fibronectin in the melanoma tumor samples and the non-melanoma cultured cell lines. The Examiner contends that it would be expected that SM5-1 would bind to synthetic fibronectin which was devoid of post-translational processing, in addition to fibronectin expressed in cultured tumor cells, and transformed cells, and fibronectin expressed in microorganisms such as E. coli and yeast. The Examiner contends that Wilson et al. disclose fibronectin from human melanoma cells which is the same antigen as claimed.

Applicants respectfully traverse this rejection.

As discussed above and shown by declaration of Dr. Guo, the antigen that antibody SM5-1 specifically binds is not fibronectin. Wilson et al. do not teach or suggest antigen of antibody SM5-1. Thus, claim 7 is not anticipated by Wilson et al. Applicants respectfully request that the rejection be withdrawn.

Claims 1 and 2 are rejected under 35 U.S.C. §102(b), as allegedly being anticipated by McCarthy et al (Biochemistry, 1988, Vol. 27, pp. 1380-1388) as evidenced by the abstract of Chen et al (Journal of Molecular Medicine, May 1998, Vol. 76, page B11). The Examiner states that the abstract of Chen et al. discloses that the SM5-1 antibody binds to fibronectin and McCarthy et al. disclose the antibodies AHB-1 and AHB-2 bind to epitopes located on the carboxyl terminal chains of fibronectin which is the same as the antibodies claimed.

Applicants respectfully traverse this rejection.

As discussed above and shown by declaration of Dr. Guo, the antigen that antibody SM5-1 specifically binds is not fibronectin. McCarthy et al. teach antibodies to fibronectin, but do not teach antibodies of the present invention. Thus, claims 1 and 2 are not anticipated by McCarthy et al. Applicants respectfully request that the rejection be withdrawn.

In view of the above, Applicants respectfully request that the rejections under 35 U.S.C. §102 be withdrawn.

Rejections under 35 U.S.C. 103(a).

Claims 8-17 are rejected under 35 U.S.C. 103(a), as allegedly being unpatentable over McCarthy et al (Biochemistry, 1988, Vol. 27, pp. 1380-1388) in view of the abstract of Sekiguchi et al (Sekiguchi, 1989, 61, pp. 89-93). The Examiner states that McCarthy et al. teach that the antibodies AHB-1 and AHB-2 bind to epitopes located on the carboxyl terminal chains of fibronectin, and the abstract of Chen et al. discloses that the SM5-1 antibody binds to fibronectin and the specification states that the SM5-1 antibody was deposited under the accession number HB-12588. The Examiner also states McCarthy et al. do not teach a method of detecting melanoma comprising contacting a sample with the AHB-1 and AHB-2 antibodies. The Examiner states that the abstract of Sekiguchi et al. teaches that various forms of fibronectin are associated with the transformed state and the IIICS region of fibronectin which is present on melanoma cells. The Examiner contends that it would have been prima facie obvious at the time invention was made to use the AHB-1 and AHB-2 to detecting melanoma fibronectin on cells or in blood samples, and one skill in the art would have been motivated to do so by the teachings of Sekiguchi et al. on the presence of the ED-A+ and ED-B+ fibronectin in transformed cells.

Applicants respectfully traverse this rejection.

Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2143.03. As discussed

above, the antigen that antibody SM5-1 specifically binds is not fibronectin. McCarthy et al. teach antibodies to fibronectin; and the abstract of Sekiguchi et al. teach molecular diversity of fibronectins. Neither McCarthy et al. nor the abstract of Sekiguchi et al. teach the antibodies of the present invention and a method for detecting melanoma in a human host using antibodies of the present invention. Since the references cited by the Examiner when combined do not teach or suggest all the claim limitations in claims 8-17, the obviousness rejection may be properly withdrawn on this ground.

In view of the above, Applicants respectfully request that the rejection of claims 8-17 under 35 U.S.C. §103(a) be withdrawn.

Double patenting rejection

Claims 1-6, 8-12, and 18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-11, 36-38, 49, 50, 52-54, 63-66, 73, and 74 of copending Application No. 09/722,849. The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '849 application anticipate the instant claims.

Applicants will address this issue when otherwise allowable subject matter for this application has been identified. Applicants respectfully request confirmation from the Examiner for the application serial number cited by the Examiner.

CONCLUSION

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no.**532732000101**. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: December 29, 2004

Respectfully submitted,

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